

# THE UN IPCC'S ARTFUL BIAS ON CLIMATE CHANGE

***United Nations  
IPCC scientists  
blame human  
interference, not  
natural variation,  
for causing our  
changing climate,  
and manipulate the  
data to suit their  
arguments.***

**by David E. Wojick, PhD © 2002**

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## **Glaring Omissions, False Confidence and Misleading Statistics**

**T**he United Nations Intergovernmental Panel on Climate Change (UN IPCC) Working Group I (WGI) Summary for Policymakers (SPM) of the Third Assessment Report (TAR) (titled *Climate Change 2001: The Scientific Basis*) is not an assessment of climate change science, even though it claims to be. Rather, it is an artfully constructed presentation of just the science that supports the fear of human-induced climate change. It is as one sided as a legal brief, which it resembles.

Line-by-line analysis of the SPM reveals that all of the science that cuts against the Theory of Human Interference with Climate has been systematically omitted. In some cases, the leading arguments against human interference are actually touched on, but without being revealed or discussed. In other cases, the evidence against human interference is simply ignored. Because of these strategic omissions, the SPM voices a degree of certainty that is entirely false.

Glaring omissions are only glaring to experts, so the "policymakers" as well as the press and the public who read the SPM will not realise they are being told only one side of the story. But the scientists who drafted the SPM know the truth, as revealed by the sometimes artful way they conceal it.

This deliberate distortion can only be explained by the fact that the UN IPCC is part of an advocacy process, organised by the United Nations Environment Program and supporting the Kyoto Protocol.

What is systematically omitted from the SPM are precisely the uncertainties and positive counter-evidence that might negate the human interference theory. Instead of assessing these objections, the Summary confidently asserts just those findings that support its case. In short, this is advocacy, not assessment.

This study grows out of several years of research into the logic of the climate change debate. During that time, I have operated an email listserv where knowledgeable people from all sides of the climate change issue have posted over 25,000 messages. From this experience, I have gained a comprehensive understanding of just how complex and unsettled the science really is. I have become increasingly distressed by statements made by supporters of the Kyoto Protocol to the effect that the science is settled, or that the uncertainties have diminished to the point where action is obviously justified. Nothing could be further from the truth.

Carbon dioxide is not pollution. On the contrary, atmospheric CO<sub>2</sub> is the Earth's entire food supply, and 95% of the emissions are natural. We could not live without them, for watching a child grow is watching processed carbon dioxide being reprocessed. Failure to mention this fundamental fact is the most astounding omission in the SPM. However, since the issue at hand is climate change, not food, I will not go further into this side of the CO<sub>2</sub> equation, vital though it be.

I am particularly concerned that the Intergovernmental Panel on Climate Change is being represented as a neutral body. Such claims are simply false, and it is the purpose of this study to demonstrate that they *are* false.

Because the IPCC scientific Summary for Policymakers is completely one sided, most of its deceptions are omissions. One cannot simply point to omissions as one can to falsehoods, so I have undertaken to catalogue the omissions and the false assertions of confidence that they enable, on a line-by-line basis. This present report is just a start, and more cases will be forthcoming over time. But time is of the essence, and this small collection

is sufficient to make the point. (An earlier draft of this report can be found at the website [http://www.john-daly.com/guests/un\\_ipcc.htm](http://www.john-daly.com/guests/un_ipcc.htm).)

The IPCC Summary for Policymakers is a study in artful bias. Specific examples of glaring omissions, false confidence and misleading statistics in the Summary are covered in the following pages (my emphasis is added in bold italics). (The UN IPCC WGI Summary for Policymakers as well as the Technical Summary of the report, *Climate Change 2001: The Scientific Basis*, is available at the IPCC's website, <http://www.ipcc.ch/>.)

### Temperature Record Error

Do we know that the Earth is actually warming? The problem of errors in the surface temperature record is profound. Likely sources of bias in the surface temperature record of the last 140 years, which are well known and considerable, are ignored. The amount of warming is claimed to be known with a false degree of confidence. We do not, in fact, know that the Earth has warmed at all.

The discussion on SPM page 2 (the first page of text) begins with this headline: "The global average surface temperature *has increased* over the 20th century by about 0.6°C"—not "may have", or even "is likely to have", but simply "has". This is false certainty. Any suggestion of doubt is omitted, but there is plenty to doubt.

The text itself says: "The global average surface temperature (the average of near surface air temperature over land, and sea surface temperature) has increased since 1861. Over the 20th century the increase has been 0.6 ±0.2°C (figure 1a). This value is about 0.15°C larger than that estimated by the SAR [Second Assessment Report] for the period up to 1994, owing to the relatively high temperatures of the additional years (1995 to 2000)

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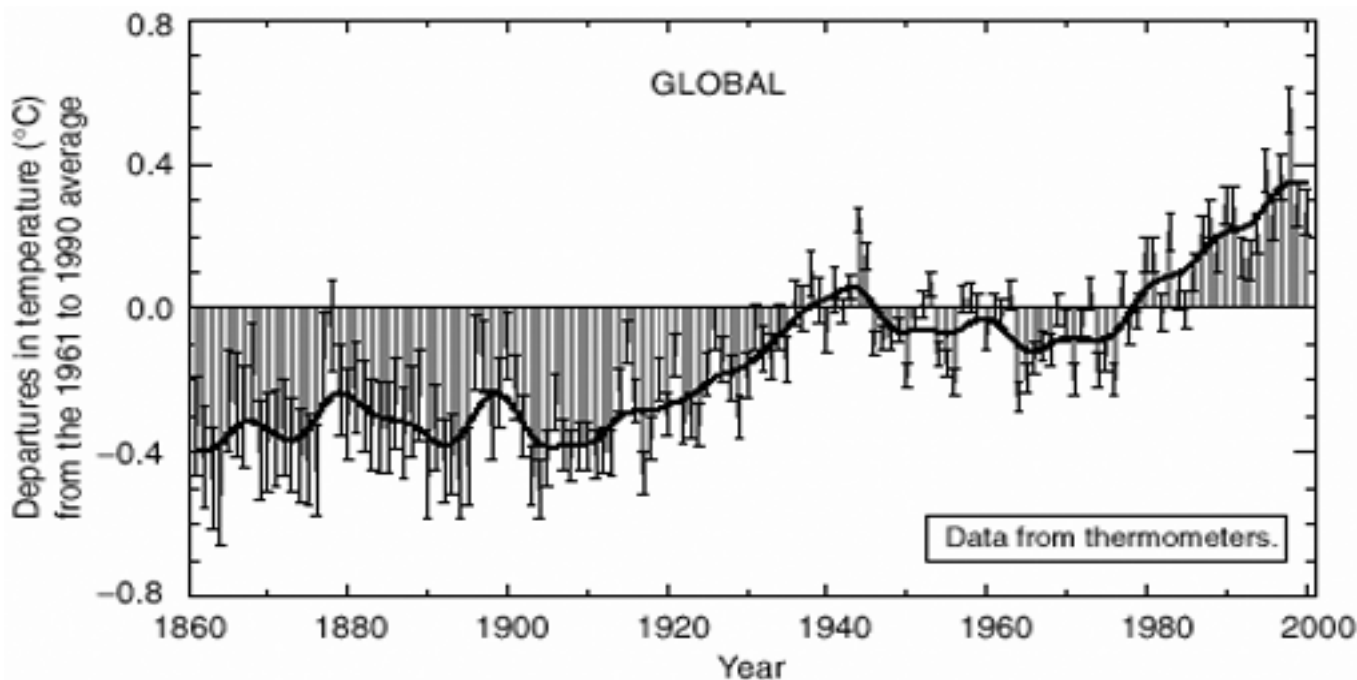
and improved methods of processing the data. These numbers *take into account various adjustments, including urban heat island effects.*"

This is the only reference in the text to any possible problems with the temperature record. It says "These numbers take into account various adjustments", with special reference to urban heat island effects. False certainty. The discussion of these problems—how likely they are to be significant, and how they have been taken into account—has simply been omitted. In fact, how well they have been taken into account is highly contentious.

The legend for figure 1a at least has more detail, albeit in finer print. It says this: "The Earth's surface temperature is shown year by year (red bars [in the original report, grey in this version]) and approximately decade by decade (black line, a filtered annual curve suppressing fluctuations below near decadal time-scales). *There are uncertainties in the annual data (thin black whisker bars represent the 95% confidence range) due to data gaps, random instrumental errors and uncertainties, uncertainties in bias corrections in the ocean surface temperature data and also in adjustments for urbanisation over the land.*

Over both the last 140 years and 100 years, the best estimate is that the global average surface temperature has increased by 0.6 ±0.2°C."

This at least mentions specific problems. But notice the placement of the parenthetical expression in the pivotal second sentence, just before the list. This seems to say quite clearly that the error bars give the 95% confidence level for the uncertainties listed. This is simply false. The error bars give at best the 95% confidence level for the pure error of sampling, which assumes the sample is random and there are no measurement errors of the sort



SPM Figure 1a: Variations of the Earth's surface temperature for the past 140 years

listed in the very sentence being modified. This comes as close to outright lying as anything we have found so far.

The truth is, there is no way to correct for most measurement errors, including the urban heat island effect. The magnitude of these errors, which may be quite large, is simply unknown. The supposed corrections that have been made to date are guesswork.

Nor does there seem to be any reference to the fact that this is a "convenience sample", not a random sample of the Earth's surface, as required by sampling science, unless it is the innocent-sounding term, "data gaps". Reference to data gaps suggests that sometimes a station did not record, or that the data is bad—not that there is, in actuality, no data for most of the Earth, most of the time. So the fact that we merely have a convenience sample is either omitted or cleverly disguised.

Statistical theory is perfectly clear that a random sample is required in order to estimate confidence levels. But the "sample" in question is just those stations that happened to measure temperatures in the last 140 years. No random sample of the Earth's surface would look like this set of stations, which provide virtually no data for most of the Earth's surface—the oceans, poles or tropics—for most of the period.

The sample the UN IPCC is using is called in statistics a convenience sample; that is, data is taken where it is most convenient. Convenience samples provide some information about the population being sampled; in this case, the temperature everywhere on Earth for 140 years. But statistical theory is adamant that you cannot legitimately infer the mean of the population or assign any confidence level from a convenience sample. Thus the UN IPCC's statistics regarding temperature are completely misleading.

While beyond the scope of this particular issue, it should be noted that the 1,000-year temperature record shown in figure 1b involves the same misleading statistics. However, the case is much worse because, in the 1,000-year record, temperature is not even measured.

Moreover, the number of items in the convenience sample is tiny. It is preposterous to claim to know the temperature of the entire Earth from such a sample. We simply do not know if the entire Earth has warmed or not. The most we know is what has happened in certain places and times, and likely measurement error makes even this information highly uncertain.

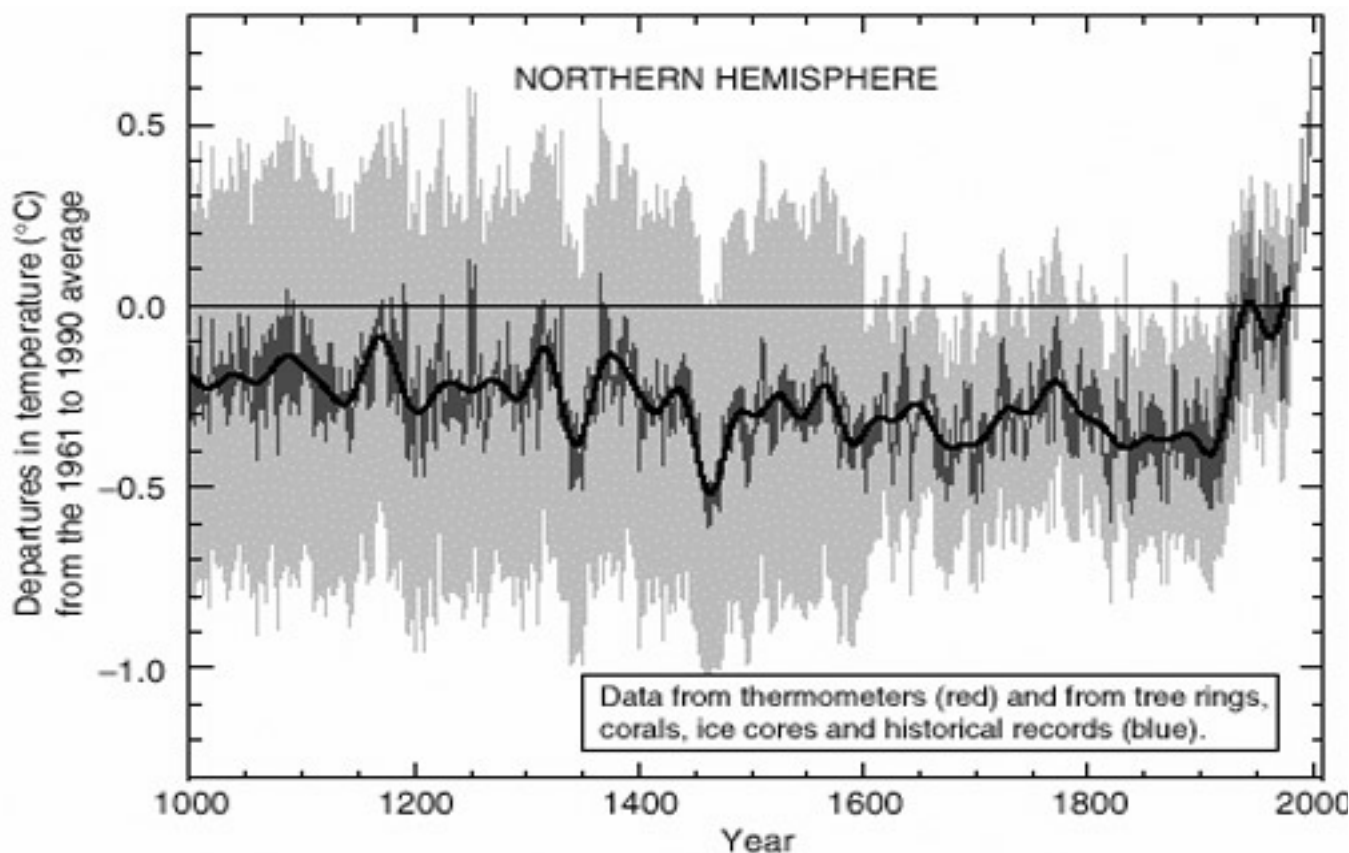
### Satellite versus Surface Temperatures

The satellite temperature record contradicts the surface record. This is a deep dilemma for climate change science. The gaping inconsistency between the recent warming shown in the surface temperature record and the absence of warming in the satellite record is simply shrugged off.

The UN IPCC WGI SPM page 4 begins with this section headline: "**Temperatures have risen** during the past four decades in the lowest 8 kilometres of the atmosphere." As explained below, this statement is highly misleading. The section itself consists of these three rather convoluted paragraphs:

"Since the late 1950s (the period of adequate observations from weather balloons), the overall global temperature increases in the lowest 8 kilometres of the atmosphere and in surface temperature **have been similar** at 0.1°C per decade.

"Since the start of the satellite record in 1979, both satellite and weather balloon measurements show that the global average temperature of the lowest 8 kilometres of the atmosphere has changed



SPM Figure 1b: Variations of the Earth's surface temperature for the past 1,000 years

by  $+0.05 \pm 0.10^\circ\text{C}$  per decade, but the global average surface temperature has increased significantly by  $+0.15 \pm 0.05^\circ\text{C}$  per decade. **The difference in the warming rates is statistically significant.** This difference occurs primarily over the tropical and sub-tropical regions.

"The lowest 8 kilometres of the atmosphere and the surface are influenced differently by factors such as stratospheric ozone depletion, atmospheric aerosols and the El Niño phenomenon. Hence, it is physically plausible to expect that over a short time period (e.g., 20 years) there may be differences in temperature trends. In addition, spatial sampling techniques can also explain some of the differences in trends, but **these differences are not fully resolved.**"

These three paragraphs mask a profound contradiction in climate change science, a contradiction that should be highlighted and discussed but is merely glossed over—namely, that *the satellite temperature record contradicts the surface record.*

What the section headline does not say is that virtually all of the atmospheric warming is in the balloon record of the first two decades of the four-decade period—the 1960s and 1970s—when the surface record shows only a little warming. Then the surface record shows rapid warming for two decades while the (then new) satellite record shows virtually no warming at all, except for the 1998 El Niño.

Thus, while the statement in the first paragraph that the trends are "similar" is statistically correct, it ignores the fact that the changes occur at completely different times. The last two paragraphs state correctly that these are significant differences that are not fully resolved, but any discussion of what it means is simply omitted.

What is omitted is the fact that climate science cannot explain this contradiction. Greenhouse gases have to warm the

atmosphere, where the heat is trapped, before warming the surface of the Earth below. If this science is correct, then one of the temperature records must be incorrect, most likely the surface record that shows the warming, because of known errors. But if there has been no warming in the last two decades, then many of the IPCC's claims which depend on such warming are simply false. Likewise, prior warming shown in the surface temperature record may be false.

Even worse, if both temperature records are correct, then our understanding of the greenhouse effect is incorrect. This is a huge dilemma for the science, and there is a great deal of speculation about it, some of which is alluded to in the third paragraph quoted.

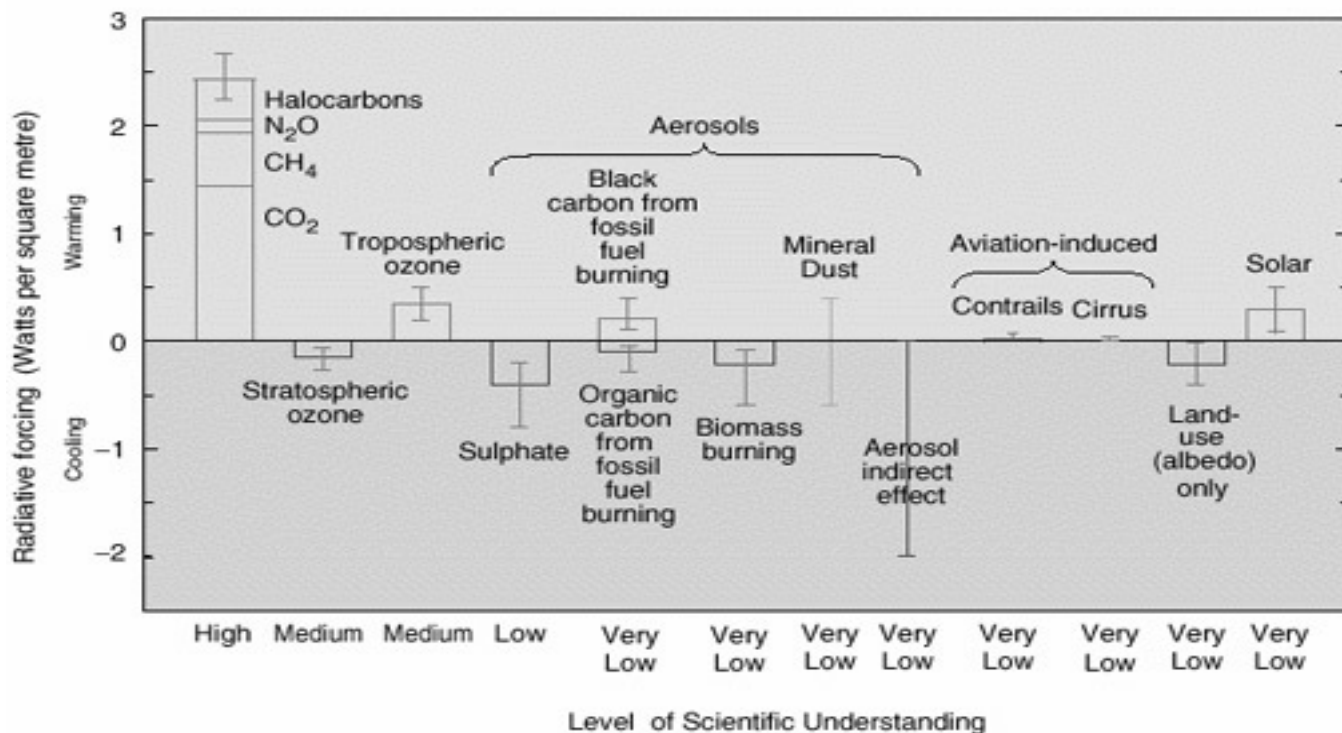
It should be noted that there is a widespread misconception that a National Academy of Sciences panel resolved this issue in January 2000. In fact, the panel concluded just what I have said above: that we do not understand how this contradiction can arise, if both temperature records are correct. Simply to gloss over this deep scientific uncertainty is a major omission indeed—perhaps the greatest omission in the UN IPCC SPM.

### Uncertainty due to Aerosols

The IPCC has suppressed the far-reaching significance of aerosol forcing, not only in the WGI SPM text but in the modeling as well. The enormous—and growing—uncertainty as to the effect of aerosols on climate is masked in the discussion and is deliberately suppressed in predicting the future. If included, the UN IPCC's 100-year prediction would embrace the possibility of *no warming*, or even *cooling*.

Discussion of aerosols in the UN IPCC WGI SPM begins on page 5 with this headline: "Emissions of greenhouse gases and

## The global mean radiative forcing of the climate system for the year 2000, relative to 1750



SPM Figure 3: SPM presentation of forcings

aerosols due to human activities continue to alter the atmosphere in ways that are *expected to affect the climate*." This statement reflects a false certainty. Whether or not human emissions will affect climate is obviously a matter of great debate. What follows, however, are some incredible omissions.

The role of aerosols is explained as follows: "A negative radiative forcing, which can arise from an increase in some types of aerosols (microscopic airborne particles), tends to cool the surface... *Characterisation of these climate forcing agents* and their changes over time...*is required* to understand past climate changes in the context of natural variations and *to project what climate changes could lie ahead*. Figure 3 shows current estimates of the radiative forcing due to increased concentrations of atmospheric constituents and other mechanisms."

This text states quite clearly and correctly that an ability to predict future climate (if that is even possible) requires an understanding of the effect of aerosols. The last sentence says that "current estimates of the radiative forcing" of aerosols are shown in figure 3. This sentence is false. In fact, not only are the estimated uncertainties in aerosol forcings not shown, they are also excluded from the projections of future climate. These are major omissions.

Figure 3 shows estimated forcings for five classes of aerosols. For four of these classes there is also a vertical error bar which the legend explains "indicates a range of estimates, guided by the spread in the published values of the forcings and physical understanding". In addition, each class is labelled with a "Level of Scientific Understanding". One class is labelled "low" and the other four are labelled "very low". No explanation of these uncertainty levels is provided. However, in the UN IPCC's 1995 Second Assessment Report, an earlier version of this same figure appears as figure 2.16 on page 117. Here it is explained that the levels "low" and "very low" are "*our subjective confidence that the actual forcing lies within this error bar*". In fact, the levels are headed "Level of Confidence", not "Level of Scientific Understanding".

In plain language, this means that the chances that the aerosol forcings actually lie within the error bars are very low in most cases. Conversely, it is very likely that the actual forcings lie outside these error bars. What, then, is the likely range for these forcings? We are not told. In fact, the very issue, which was at least alluded to in the IPCC SAR, has now been entirely omitted.

The truth is that the possible range of forcings is very large, much larger than the error bars show. Therefore, the range of aerosol forcings is much larger than the ranges for the greenhouse gases, which are shown to have a "high" level of scientific understanding. If the correct error bars for aerosols were shown—bars that display the likely range of forcings—they would be seen to overwhelm the greenhouse gas forcings.

In short, we simply do not understand aerosol forcing. In fact, a recent paper in the journal *Science* claims that the range of possible forcings is as much as twice the very large range that is not shown in the TAR. This indicates that our understanding of aerosol forcing is diminishing as research proceeds. (See

"Reshaping the Theory of Cloud Formation" by R. J. Charlson et al., *Science*, June 15, 2001.)

If, as the UN IPCC states quite clearly and correctly, an ability to project future climate requires an understanding of the effect of aerosols, then we simply do not have that ability. Yet the IPCC does project future climates, based on various scenarios.

How does the UN IPCC deal with our profound lack of understanding of aerosol forcings? The answer lies in an incredible footnote on page 13, specifically footnote 11. In the preceding text, the IPCC says this: "The globally averaged surface temperature is projected to increase by 1.4 to 5.8°C...over the period 1990 to 2100. These results are for the full range of 35 SRES scenarios, based on a number of climate models." Footnote 11 amends this 1.4 to 5.8°C projection as follows: "*This range does not include uncertainties in the modelling of radiative forcing, e.g., aerosol forcing uncertainties.*"

So the UN IPCC has simply ignored the very large aerosol uncertainties. No reason is given—but if these uncertainties were included, some of the scenarios would yield projections of future *cooling*, not warming. Perhaps the UN IPCC does not want to admit the possibility that there may be no warming at all, or actual cooling.

In any case, it is clear that the entire issue of aerosol uncertainty has been omitted from the WGI SPM, and the language of the key figure has been changed. Far worse, however, is that the effect of this uncertainty has been deliberately suppressed in the model projections of future climate. It is hard not to see this as scientific fraud.

#### Natural GHG Emissions

Human greenhouse gas (GHG) emissions are a tiny fraction of natural emissions. The fact that the vast majority of all greenhouse gas emissions are natural is ignored.

The discussion of GHG emissions on UN IPCC WGI SPM page 7 contains these three sequential paragraphs:

"The rate of increase of atmospheric CO<sub>2</sub> concentration has been about 1.5

ppm (0.4%) per year over the past two decades. During the 1990s the year-to-year increase varied from 0.9 ppm (0.2%) to 2.8 ppm (0.8%). A large part of this variability is due to the effect of climate variability (e.g., El Niño events) on CO<sub>2</sub> uptake and release by land and oceans.

"The atmospheric concentration of methane (CH<sub>4</sub>) has increased by 1060 ppb (151%) since 1750 and continues to increase. The present CH<sub>4</sub> concentration has not been exceeded during the past 420,000 years. The annual growth in CH<sub>4</sub> concentration slowed and became more variable in the 1990s, compared with the 1980s. *Slightly more than half of current CH<sub>4</sub> emissions are anthropogenic* (e.g., use of fossil fuels, cattle, rice agriculture and landfills). In addition, carbon monoxide (CO) emissions have recently been identified as a cause of increasing CH<sub>4</sub> concentration.

"The atmospheric concentration of nitrous oxide (N<sub>2</sub>O) has increased by 46 ppb (17%) since 1750 and continues to increase. The present N<sub>2</sub>O concentration has not been exceeded during at least the past thousand years. *About a third of current N<sub>2</sub>O*

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**emissions are anthropogenic** (e.g., agricultural soils, cattle feed lots and chemical industry)."

This parallel construction requires that there be a sentence explaining the fraction of CO<sub>2</sub> emissions that are anthropogenic, but there is none. It would read as follows: "About one twenty-fifth of current CO<sub>2</sub> emissions are anthropogenic." The important fact that the vast majority of CO<sub>2</sub> emissions are natural has been omitted.

In addition, not even mentioned is water vapour, by far the most important greenhouse gas. Natural emissions of water vapour are so enormous that human emissions do not even measure in comparison. If this were explained, there would also be a sentence saying: "Virtually no water vapour emissions are anthropogenic."

### Chaos in the Climate System

The UN IPCC has ignored major scientific advances that undercut the theory of human interference, including the complex chaos science that is presented in the Third Assessment Report itself. According to the TAR, the climate is chaotic, so prediction of future states is impossible.

Advances in climate science that do not support the theory of human interference have been ignored in the UN IPCC WGI Summary for Policymakers. These include the role of clouds, solar variation, lunar influence, orbital cycles, decadal oscillations and more. If anything, the science today provides less support for the theory of human interference than it did in 1995, when the IPCC Second Assessment Report was completed.

Perhaps the most egregious omission is the emerging understanding of the chaotic nature of climate. Not only is this science very important, but it is presented in considerable detail in the TAR itself (see below). About one half of chapter 14 of the WGI TAR is devoted to discussing the deep significance of the fact that climate processes are chaotic and therefore unpredictable. But the SPM does not even mention the word "chaos".

Likewise, the draft UN IPCC WGI Technical Summary (TS), which was written by the same people as the SPM, has but a single sentence on chaos, tucked away on page 78. It says: "**The climate system is a coupled non-linear chaotic system, and therefore the long-term prediction of future exact climate states is not possible. Rather, the focus must be upon the prediction of the probability distribution of the system's future possible states** by the generation of ensembles of model solutions."

In plain language, the kind of prediction the UN IPCC is doing is not possible. The best that might be done is to provide a probability distribution for possible futures, but the IPCC does not do this. The profound fact of chaotic climate is simply ignored.

What makes this omission so egregious is that the chaotic nature of climate is discussed in the WGI TAR itself, which the SPM and TS are supposed to be summarising. Here are some statements from the expert review draft TAR, chapter 14 (the order has been changed for clarity):

**"In sum, a strategy must recognise what is possible.** In climate research and modelling, we should recognise that we are dealing with a coupled non-linear chaotic system, and therefore that the prediction of a specific future climate state is not possible.

The most we can expect to achieve is the prediction of the probability distribution of the system's future possible states by the generation of ensembles of model solutions. **This reduces climate change to the discernment of significant differences in the statistics of such ensembles. The generation of such model ensembles will require the dedication of greatly increased computer resources and the application of new methods of model diagnosis.**"

In short, it cannot now be done. Not only is prediction fundamentally impossible due to chaos, but the statistical substitute for prediction that may be possible cannot now be done. The uncertainty is complete. Chapter 14 includes these statements:

"The climate system is particularly challenging since it is known that components in the system are inherently chaotic and there are central components which affect the system in a non-linear manner and potentially could switch the sign of critical feedbacks. The non-linear processes include the basic dynamical response of the climate system and the interactions between the different components."

"These complex, non-linear dynamics are an inherent aspect of the climate system. Amongst the important non-linear processes are the role of clouds, the thermohaline circulation and sea ice. There are other broad, non-linear components: the biogeochemical system and, in particular, the carbon system, the hydrological cycle and the chemistry of the atmosphere."

"A strategy to advance our understanding must deal with the underlying chaotic nature of the climate system and the significant non-linearities. The chaotic aspect of the climate system poses significant challenges to predicting changes in the occurrence of extreme events."

"An overriding challenge to modeling and to the IPCC is prediction. This challenge is particularly acute when predictive capability is sought for a system that is chaotic, that has significant non-linearities and that is inherently stiff."

"However, as the temporal horizon grows, then the challenge shifts as

chaotic elements begin to affect the evolution of the system. The predictive environment shifts from one of precision to one of statistical significance."

"There is a growing recognition in the scientific community and more broadly that the Earth functions as a system, with properties and behaviour that are characteristic of the system as a whole. These include critical thresholds, switch or control points, strong non-linearities, teleconnections, chaotic elements and unresolvable uncertainties. Understanding components of the Earth System is critically important, but is insufficient on its own to understand the functioning of the Earth System as a whole."

Chaos is a fundamental uncertainty in climate science, but the UN IPCC ignores it.

### The Influence of Solar Variation

The most systematic omission in the Third Assessment Summary for Policymakers is discussion of warming due to natural climate variation.

Evidence of natural climate temperature variation has mushroomed since the release of the 1995 Second Assessment Report. But the TAR SPM only mentions one of the many variations now known to exist: variable solar input, or incoming solar radiation

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(called "insolation"). It is worth seeing how the SPM handles the variable insolation that is now generally accepted to occur.

At the time of the SAR, the theory that solar variation contributed to the 20th-century surface temperature run-up was well known but considered speculative. So the SAR dismissed this influence and argued that the entire increase was due to human interference. Since then, the influence of solar variation on climate change has been generally accepted, and the TAR SPM acknowledges it. However, it does so in a way that both obscures and minimises the effect.

The discussion of solar variation is on page 9, beginning with the following headline: "*Natural factors have made small contributions to radiative forcing over the past century.*" This headline dismisses the effect of all natural variations as "small". But the two variations actually considered are solar radiation and volcanic aerosols. For solar, on the very preceding page in figure 3, our understanding of the degree of forcing is said to be "very low". This statement therefore expresses a false degree of confidence.

By the IPCC's own assessment, the solar forcing could be quite large. This is actually acknowledged, but then dismissed, in the first paragraph: "*The radiative forcing due to changes in solar irradiance for the period since 1750 is estimated to be about +0.3 W/m<sup>2</sup>, most of which occurred during the first half of the 20th century. Since the late 1970s, satellite instruments have observed small oscillations due to the 11-year solar cycle. Mechanisms for the amplification of solar effects on climate have been proposed, but currently lack a rigorous theoretical or observational basis.*"

The first sentence is quite telling, for it admits that solar variation is generally accepted to have contributed significantly to the first of the two recorded 20th-century warming periods. As SPM figure 1a shows, all of the lasting warming in the 140-year surface record occurred in just two relatively brief periods—from 1910 to 1940, and from 1980 to the present. Some well-known scientists argue that solar variation is sufficient to explain all of the warming in the first period, which is what the first sentence alludes to but studiously fails to discuss. Instead, it "estimates" the forcing to be small, ignoring our "very low" understanding. That the variation is small is well known. The size of the effect, however, is unknown and extremely controversial.

The second sentence is an attempt to refute well-known arguments that solar variation can also explain the warming in the second period. The SPM acknowledges that there has been variation during this period, an observation verified by satellite, but again dismisses the effect as "small".

The third sentence is the most egregious as far as biased assessment is concerned. It first acknowledges, then dismisses out of hand the large amount of scientific literature on how a small solar variation might amplify to affect climate significantly. This sentence is actually false, because there are both theoretical and observational bases for these proposals. In fact, the starting point for this literature is the strong, and well-known, correlation

between solar activity and the warming record. A correct assessment would be that solar variation is a plausible, but as yet unverified, explanation for all the warming shown in the surface record. The TAR SPM assessment of this science is quite different, and therefore quite biased.

Moreover, the acceptance of the significant role of solar variation in the first warming period raises a broader issue. Greenhouse gas levels have been rising for over 140 years, but their warming effect, if any, is increasingly confined to just the last 20 years or so. This is a significant change since the 1995 SAR in the basis for the human interference theory, yet it is not acknowledged. One would expect a corresponding decrease in the projected future impact of increasing GHGs, but this, too, is missing.

Finally, given that we have only recently verified the significant role of solar variation in the first period of recorded warming, it seems logical to suspend judgment on the cause of the second-period warming—especially since there are known reasons to believe that it, too, may be solar in origin, in whole or in part.

This caution is doubly called for, given that there are several other climate variations that can equally well claim to cause the two observed warming periods. Contrary to what the TAR SPM asserts, the scientific situation is completely open at this point.

#### Natural Climate Variation

Evidence of naturally variable climate processes, including natural warming, has mushroomed since the 1995 IPCC Second Assessment. But the Third Assessment SPM does not even mention most of these processes, nor do the climate models include these powerful variables. These are major systematic omissions. In fact, the SPM concludes on page 10 that: "*There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities.*"

What the SPM ignores is that there is also "new and stronger evidence" that all of the warming is attributable to natural variation. This is an artful

subterfuge. It is a paradox in the logic of evidence that there can be at once "new and stronger evidence" for each of two contending theories in science.

In fact, there are now multiple natural variations, any one of which can explain the observed warming in the surface temperature record. Some of these are listed below:

- To begin with, there is the discovery of two enormous natural climate oscillators on the decade-to-century scale. These are called the Pacific Decadal Oscillation and the North Atlantic Oscillation. The temperature variations associated with these oscillators are sufficient to explain the entire rise shown in the 140-year surface temperature record. But the SPM does not even mention them.

- Secondly, there is a dramatic finding regarding the Moon's possible influence on climate. The ocean drives the climate and two-thirds of the ocean's mixing energy comes from the Moon, which stirs the oceans twice a day. It has been demonstrated that

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multi-century variations in the Moon's influence correspond with the variations in the estimated temperature record. This effect, if confirmed, is also sufficient to explain the entire rise in the 140-year temperature record, as well as prior variations found in proxy records.

- Thirdly, there is a well-known (not recently discovered) oscillation that the SPM chooses to ignore. The period of the Middle Ages was warm, quite possibly as warm as today. This warm period was followed by several centuries of cold, called the Little Ice Age, which ended around 1850. The present warming may therefore be simply a recovery from the Little Ice Age, part of a multi-century natural oscillation, and some scientists have argued for this.

- Fourthly, solar variation is now accepted as playing a significant part in at least one of the two periods of warming in the 140-year surface temperature record. (As SPM figure 1a shows, all of the lasting warming in the 140-year surface record occurred in just two relatively brief periods—from 1910 to 1940, and from 1980 to the present.) Some scientists argue that solar variation can explain all of both warmings.

- Lastly, new models of the well-known Milankovitch orbital forcing predict that we *should* be in a warming period.

The SPM does not allow for these powerful natural influences, with the exception of a small solar forcing, and nor do the climate models themselves.

On page 10, the SPM says the following: "*Simulations of the response to natural forcings alone (i.e., the response to variability in solar irradiance and volcanic eruptions) do not explain the warming in the second half of the 20th century...*

*However, they indicate that natural forcings may have contributed to the observed warming in the first half of the 20th century.*"

This paragraph makes clear that the only natural variations considered by the computer models are solar radiation and major land-based volcanic activity. The massive forces and oscillators listed above are simply ignored.

The correct assessment of the science is that there are many possible explanations for the observed surface temperature rise, any one of which is sufficient to explain the entire increase. Moreover, most of these contending explanations depend solely on a natural variation.

I call this emerging view of climate as a vast, ever-changing, dynamic process the Theory of Integrated Climate Variation. This theory views changing climate as natural, something to be prepared for—not something that can be altered or prevented. On this view, the slight surface warming observed over the last century or so is also natural—not the result of human interference.

Thus, the underlying scientific debate is between the Theory of Human Interference with Climate and the Theory of Integrated Climate Variation.

Natural variation is a new way of understanding climate, which the climate models mistakenly take to be unchanging. If the theory of integrated climate variation is correct—and there is a great and growing body of evidence for it—then this assumption of invariance by the climate modellers is simply a fundamental error.

## UN IPCC Scientific Working Group Lead Authors

Many of the Working Group I SPM lead authors are prominent activists for the theory of human interference, as opposed to the theory of integrated climate variation.

The press often says the UN IPCC reports are produced by hundreds, if not thousands, of scientists. This may be true in some vague sense of participation, and the actual TAR chapters do not exhibit as much glaring scientific bias as the WGI Summary for Policymakers and the Technical Summary.

On the other hand, only experts read the main reports. The UN IPCC's voice to policymakers, press and the public regarding climate science is through the WGI SPM and the TS. These two documents have precisely the same 20 lead authors, many of whom are among the leading proponents of the theory of human interference with climate.

Here are the 20 lead authors listed by the UN IPCC (the names in bold typeface stand out in particular as among the top rank of activist scientists for the theory of human interference with climate; most of them are frequently quoted in the American and British press):

*Coordinating lead authors* – D. L. **Albritton** (United States of America), L. G. Meira Filho (Brazil).

*Lead authors* – U. **Cubasch** (Germany), X. Dai (China), Y. Ding (China), D. J. Griggs (United Kingdom), B. Hewitson (South Africa), J. T. **Houghton** (UK), I. Isaksen (Norway), T. **Karl** (USA), M. McFarland (USA), V. P. Meleshko (Russia), J. F. B. **Mitchell** (UK), M. **Noguer** (UK), B. S. Nyenzi (Tanzania), M. **Oppenheimer** (USA), J. E. Penner (USA), S. Pollonais (Trinidad and Tobago), T. Stocker (Switzerland), K. E. **Trenberth**

(USA).

It is no wonder, therefore, that the two summaries are so blatantly biased in favour of the theory of human interference with climate. They are written by scientists who have staked their reputations on that theory. This sort of bias need not be politically motivated. Most articles in the scientific literature are advocating some theory or other.

Again, what is really going on in the science is a debate between the Theory of Human Interference with Climate and the Theory of Integrated Climate Variation.

### About the Author:

Dr David E. Wojick has a PhD in mathematical logic and philosophy of science from the University of Pittsburgh, and a Bachelor of Science in civil engineering from Carnegie Mellon University. He has been on the faculty of Carnegie Mellon, where he helped found both the Department of Engineering and Public Policy and the Department of Philosophy. He has also served with the Office of Naval Research and the Naval Research Laboratory.

David is presently a freelance writer, covering climate change issues for *Electricity Daily*, as well as a policy analyst. A résumé and client list are available at <http://www.bydesign.com/powervision/resume.html>. For further information and discussion, email David at [dwojick@climatechangedebate.org](mailto:dwojick@climatechangedebate.org) or visit his website at <http://www.climatechangedebate.org>.

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